

CLAIMS

What is claimed is:

1. An optical system production method, comprising
supplying optical benches from an optical bench supply;
supplying optical components from a component supply;
receiving optical components from the optical component supply and optical
benches from the optical bench supply at a pick-and-place machine;
attaching the optical components to the optical benches with the pick-and-place
machine;
characterizing positions of the optical components, which have been attached to the
optical benches; and
mechanically adjusting the relative positions of the optical components with an
optical system aligner.
2. An optical system production method as claimed in claim 1, wherein the step of
attaching the optical components to the optical benches with the pick-and-place
machine comprises solder bonding the optical components to the optical benches.
3. An optical system production method as claimed in claim 1, wherein the step of
characterizing the positions of the optical components comprises:
the optical system aligner activating optical links of optical systems;
detecting optical signals after interaction with at least some of the optical
components; and
adjusting the optical components to optimize transmission of the optical signals in
the optical systems.

4. An optical system production method as claimed in claim 1, wherein the step of characterizing the positions of the optical components comprises:
 - energizing active components of optical systems; and
 - adjusting the optical components to optimize optical signal transmission through the optical systems from the active optical components.
5. An optical system production method as claimed in claim 1, wherein the step of characterizing the positions of the optical components comprises:
 - energizing active components of optical systems; and
 - adjusting a position of at least one passive optical component in each of the optical systems to optimize optical signal transmission from the active components through the optical systems.
6. An optical system production method as claimed in claim 1, wherein the step of characterizing the positions of the optical components comprises:
 - energizing active components of optical systems; and
 - adjusting positions of at least two passive optical components in each of the optical systems to optimize optical signal transmission between the passive components.
7. An optical system production method as claimed in claim 1, wherein the pick and place machine is a flip-chip bonder.
8. An optical system production method as claimed in claim 1, wherein the step of mechanically adjusting the relative positions of the optical components comprises engaging mounting structures supporting the optical components and moving the structures relative to the optical benches with the optical system aligner.
9. An optical system production method as claimed in claim 1, wherein the step of mechanically adjusting the relative positions of the optical components comprises

engaging mounting structures supporting the optical components and plastically deforming the structures relative to the optical benches with the optical system aligner.

10. An optical system production method as claimed in claim 1, further comprising attaching optical components to mounting structures supplied from an alignment structure supply.

11. An optical system production method, comprising
supplying optical benches from an optical bench supply;
supplying optical components from a component supply;
supplying mounting structures from an alignment structure supply;
attaching the optical components to the mounting structures at a pick and place machine;
receiving optical components, attached to the mounting structures, and optical benches from the optical bench supply at a pick-and-place machine;
attaching the optical components to the optical benches, via the mounting structures, with the pick-and-place machine;
characterizing positions of the optical components, which have been attached to the optical benches; and
mechanically adjusting the relative positions of the optical components with an optical system aligner by deforming the mounting structures to which the optical components are attached.